BRUHAT BANGALORE MAHANAGARA PALIKE
BYATARAYANAPURA DIVISION

Name of Work: Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura

3RD & PART BILL

TEST REPORTS

TEJUS CONSULTANTS
CONSULTING ENGINEERS AND DESIGNERS
No.58 MIG, 6th Cross, 3rd Main
1st Stage, Basaveshwaranagar
Bangalore-560079
☎ 080 - 23287532
email: tejusconsultants@gmail.com

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AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Project	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	Benaka Developers & Project Pvt.Ltd.		
Proposed Use	WMM	**Date of Sampling**	**18-02-20**
Sample Location	**At plant**	**Date of Testing**	**18-02-20**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	352.00	370.00	360.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	270.00	278.00	275.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	82.00	92.00	85.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	23.30	24.86	23.61	
5	Average Aggregate impact value	(%)	23.92			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

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Authorised Signatory

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mananagara Palik
Bangalore - 560 092

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FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Project	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Benaka Developers & Project Pvt.Ltd.

Type of Material	WMM		**Proposed Use**	WMM
Sample Location	At plant		**Date of Sampling**	18-02-20
			Date of Testing	18-02-20

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	840	70	770	55
16.0	12.5	1250	110	1140	120
12.5	10.0	460	80	380	65
10.0	6.3	510	65	445	38
Total		**3060**	**325**	**2735**	**278**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.62
Elongation Index(%):	10.16
Combined FI+EL (%)	20.79

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Bruhat Bangalore Mananagara Palike
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AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Project	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	Benaka Developers & Project Pvt.Ltd.		
Proposed Use	BC	**Date of Sampling**	**02-03-20**
Sample Location	At plant	**Date of Testing**	**02-03-20**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	390.00	375.00	350.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	285.00	270.00	255.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	105.00	105.00	95.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	26.92	28.00	27.14	
5	Average Aggregate impact value	(%)	27.36			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

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FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Project :	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor:	Benaka Developers & Project Pvt.Ltd.

Type of Material	BC	**Proposed Use**	**BC**
Sample Location	At plant	**Date of Sampling**	**02-03-20**
		Date of Testing	**02-03-20**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	640	74	560	71
16.0	12.5	1230	110	1125	82
12.5	10.0	567	75	450	62
10.0	6.3	510	58	460	52
Total		**2947**	**317**	**2595**	**267**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.76
Elongation Index(%):	10.29
Combined FI+EL (%)	21.05

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GRADATION FOR BC (As per MORT&H 500-18,Grading-2)		
Name of Work	:	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Date of Testing	:	02-03-20
Type of Mix	:	BC
Sample I/D	:	BC3

Sample Location:	At plant	Date of Sampling:	02-03-20
Type of material & Purpose:	BC	Date of testing:	02-03-20
		Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	132	132.0	11.00	89.00	79 - 100
9.50	105	237.0	19.75	80.25	71 - 95
4.75	220	457.0	38.08	61.92	53 - 71
2.360	120	577.0	48.08	51.92	42 - 58
1.180	131	708.0	59.00	41.00	34 - 48
0.600	110	818.0	68.17	31.83	26 - 38
0.300	122	940.0	78.33	21.67	18 - 28
0.150	70	1010.0	84.17	15.83	12 - 20
0.075	105	1115.0	92.92	7.08	4 - 10
Pan	85.0				
Total	1200.0				

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DETERMINATION OF RATE OF SPREAD TACK COAT	
Name of Work :	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	Benaka Developers & Project Pvt.Ltd.
Date of Testing :	02-03-20
Type of Mix :	Tack coat
Sample I/D :	1

Determination	Unit	Test No		
		1	2	3
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.762	0.768	0.779
Final weight of plate after application of tack Coat (c)	Kg	0.785	0.791	0.802
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.250	0.256	0.251
Average	Kg/sq.m	0.252		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

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Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work :	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	Benaka Developers & Project Pvt.Ltd.
Date of Testing :	02-03-20
Type of Mix :	BC
Sample I/D :	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	851	854
2. Weight of Mixture after extraction, g	806	809
3. Weight of Bitumen	45	45
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.10	4.00
6. Weight of fines, g	2.10	2.00
7. Weight of Bitumen & fines	47.10	47.00
8. Bitumen content in %	5.53	5.50
9. Average Bitumen content in %	**5.52**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION
(As per MORT&H 500-18,Grading-2)

Sample Location:	At site	Date of Sampling:	02-03-20
Type of material & Purpose:	**BC**	Date of testing:	02-03-20
		Oven Dry Wt.(gms):	806.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	101	101.0	12.53	87.47	79 - 100
9.50	68	169.0	20.97	79.03	71 - 95
4.75	136	305.0	37.84	62.16	53 - 71
2.360	101	406.0	50.37	49.63	42 - 58
1.180	89	495.0	61.41	38.59	34 - 48
0.600	60	555.0	68.86	31.14	26 - 38
0.300	48	603.0	74.81	25.19	18 - 28
0.150	65	668.0	82.88	17.12	12 - 20
0.075	74	742.0	92.06	7.94	4 - 10
Pan	64.0				
Total	806.0				

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GRADATION FOR BC
(As per MORT&H 500-18,Grading-2)

Name of Work	:	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	Benaka Developers & Project Pvt.Ltd.
Date of Testing	:	03-03-20
Type of Mix	:	BC
Sample I/D	:	BC3

Sample Location:	At plant	**Date of Sampling:**	03-03-20
Type of material & Purpose:	BC	**Date of testing:**	03-03-20
		Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	160	160.0	13.33	86.67	79 - 100
9.50	125	285.0	23.75	76.25	71 - 95
4.75	220	505.0	42.08	57.92	53 - 71
2.360	135	640.0	53.33	46.67	42 - 58
1.180	100	740.0	61.67	38.33	34 - 48
0.600	80	820.0	68.33	31.67	26 - 38
0.300	130	950.0	79.17	20.83	18 - 28
0.150	60	1010.0	84.17	15.83	12 - 20
0.075	90	1100.0	91.67	8.33	4 - 10
Pan	100.0				
Total	1200.0				

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DETERMINATION OF RATE OF SPREAD TACK COAT

Name of Work :	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	Benaka Developers & Project Pvt.Ltd.
Date of Testing :	03-03-20
Type of Mix :	Tack coat
Sample I/D :	1

Determination	Unit	Test No		
		1	2	3
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.777	0.779	0.780
Final weight of plate after application of tack Coat (c)	Kg	0.800	0.802	0.803
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.250	0.256	0.251
Average	Kg/sq.m	0.252		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

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BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work :	Improvements to Drains of Pampa Extension in Ward No 07 Byatarayanapura
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	Benaka Developers & Project Pvt.Ltd.
Date of Testing :	03-03-20
Type of Mix :	BC
Sample I/D :	BC2

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	860	790
2. Weight of Mixture after extraction, g	815	749
3. Weight of Bitumen	45	41
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.30	4.00
6. Weight of fines, g	2.30	2.00
7. Weight of Bitumen & fines	47.30	43.00
8. Bitumen content in %	5.50	5.44
9. Average Bitumen content in %	**5.47**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION
(As per MORT&H 500-18,Grading-2)

Sample Location:	At site	Date of Sampling:	03-03-20
Type of material & Purpose:	**BC**	Date of testing:	03-03-20
		Oven Dry Wt.(gms):	815.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	80	80.0	9.82	90.18	79 - 100
9.50	60	140.0	17.18	82.82	71 - 95
4.75	150	290.0	35.58	64.42	53 - 71
2.360	110	400.0	49.08	50.92	42 - 58
1.180	80	480.0	58.90	41.10	34 - 48
0.600	58	538.0	66.01	33.99	26 - 38
0.300	75	613.0	75.21	24.79	18 - 28
0.150	80	693.0	85.03	14.97	12 - 20
0.075	65	758.0	93.01	6.99	4 - 10
Pan	57.0				
Total	815.0				

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